

What we claim is:

1. A fully vulcanized powdery silicone rubber excluded from vulcanized powdery silicone rubber obtained by chemical crosslinking.

2. The fully vulcanized powdery silicone rubber according to claim 1, characterized in that the fully vulcanized powdery silicone rubber particle has an average particle size of from 0.02 to 1 μ , preferably from 0.05 to 0.5 μ , more preferably 0.05 to 0.1 μ .

3. The fully vulcanized powdery silicone rubber according to claim 1 or 2, characterized in that the fully vulcanized powdery silicone rubber has a gel content of at least 60% by weight, preferably at least 75% by weight.

4. The fully vulcanized powdery silicone rubber according to any one of claims 1 to 3, characterized in that the fully vulcanized powdery silicone rubber particle has a homogeneous structure

5. A process for preparing the fully vulcanized powdery silicone rubber, which comprises vulcanizing a corresponding feed latex of organosilicon polymer or copolymer by means of irradiation.

6. The process according to claim 5, characterized in that latex of organosilicon polymer or copolymer having lower molecular weight is used as the feed latex and irradiated with a high-energy source in the presence or absence of a crosslinking agent, and the fully vulcanized powdery rubber is obtained by drying after the irradiation.

7. The process according to claim 6, characterized in that the latex of organosilicon polymer or copolymer having lower molecular weight is silicone oil latex.

8. The process according to claim 6, characterized in that the high-energy source is selected from cobalt source, X-rays, UV rays or high-energy electron beams, with cobalt source being preferred.

9. The process according to claim 6, characterized in that the irradiation

dose is in the range of from 5 to 30 megarads, preferably 10 to 20 megarads.

Sub 10
10. The process according to any one of claims 6 to 9, characterized in that a crosslinking agent is added during the irradiation, and is selected from monofunctional, difunctional, trifunctional, tetrafunctional and multifunctional crosslinking agent, and any combination thereof.

11. The process according to claim 10, characterized in that the crosslinking agent is selected from the group consisting of isooctyl (meth)acrylate, glycidyl (meth)acrylate, 1,4-butanediol di(meth)acrylate, 1,6-hexanediol di(meth)acrylate, diethylene glycol di(meth)acrylate, triethylene glycol di(meth)acrylate, neopentyl glycol di(meth)acrylate, divinyl benzene, trimethylolpropane tri(meth)acrylate, pentaerythritol tri(meth)acrylate, pentaerythritol tetra(meth)acrylate, ethoxylated pentaerythritol tetra(meth)acrylate or di-pentaerythritol penta(meth)acrylate, and any combination thereof.

Sub 13
12. The process according to claim 10 or 11, characterized in that the amount of the crosslinking agent added is 0.1 to 10% by weight, preferably 0.5-7% by weight, more preferably 0.7-5% by weight, based on the the solid content of latex of organosilicon polymer or copolymer having lower molecular weight.

13. The process according to any one of claims 6 to 12, characterized in that drying is carried out by spray drying with a spray dryer or by precipitation drying method, preferably spray drying.

14. The process according to claim 13, characterized in that the inlet temperature of the spray dryer is controlled at 100 to 200°C, and the outlet temperature at 20 to 80°C.

15. The use of the fully vulcanized powdery silicone rubber according to any one of claims 1-4 or obtained by the process according to any one of claims 5 to 14 as toughening agent, processing aid, or as additives for cosmetics, ink, paints and coatings.